The Modified Nucleosides of Transfer RNA, II

A Laboratory Manual of Genetic Analysis, Identification, and Sequence Determination

Edited by P.F. Agris and R.A. Kopper

Alan R. Liss; New York, 1983
310 pages. £29.00

This book deals with various aspects of biochemistry of transfer RNAs with special attention to modified nucleosides. It comprises two types of papers written by different authors: reviews or compilations and experimental procedures. Amongst the first type is a very interesting review about the genetics of modified nucleosides in tRNAs. It gives the known mutations leading to modification defects and their influence on tRNA function. Other papers compile the mass spectra of major and modified nucleosides and the transfer RNA sequences both in the cloverleaf and linear sequences. The list of the linear sequences is a copy of what already appeared in Nucleic Acids Research in 1982.

An interesting bibliography about all that has been published in the modified nucleoside field of tRNAs up to 1982 is also given. The two technical papers deal with sequence analysis of in vitro ^{32}P-labeled RNAs and with quantitative RP-HPLC analysis of tRNAs for major and minor nucleosides. This book is a useful laboratory manual for all those working in the field of tRNA structure and role.

G. Dirheimer

Biochemical and Clinical Aspects of Pteridines: Volume 1

Cancer Immunology Metabolic Diseases

Edited by H. Wachter, H.Ch. Curtius and W. Pfleiderer

Walter de Gruyter; Berlin, 1982
xv + 372 pages. DM 150

This book records the proceedings of a workshop attended by scientists from Austria, France, Germany and Switzerland. Interest in pteridines has been limited by difficulties in assay of those substances which was based on microbiological assay with a trypanosome, *Crithidia fasciculata* or by a phenylamine hydroxylase assay. Latterly, these have been replaced by HPLC preceded by a somewhat tedious preparation of material and, currently, by a more acceptable radioimmunoassay.

Mammals appear able to synthesise their own pteridines from guanidine triphosphate, the initial pyrimidine derivative formed in the presence of GTP-cyclohydrolase, being converted to dihydroneopterin and dihydrobiopterin. Tetrahydrobio-

pterin is concerned in metabolism of tyrosine and tryptophan and for synthesis of biogenic amines. Clinically impaired tetrahydrobiopterin metabolism gives rise to variants of phenylketonuria. These aspects of pteridine chemistry, biosynthesis and measurement are reviewed in this book. The greater part, however, deals with the application of pteridine measurements in serum and urine in man to disease states and, in particular, whether these levels serve as useful markers to cellular proliferation particularly neoplastic. The French participants noted a relative fall in neopterin levels relative to biopterin in adults as compared with newborn but a higher neopterin/biopterin ratio was found in cancer patients. Increased excretion of neopterin was noted in gynaecological malignancies, in childhood cancer, in haematological malignancies including myeloma, non-Hodgkins and Hodgkins lymphoma, chronic lymphatic leukaemia and chronic myelocytic leukaemia. It was also increased in polycythaemia rubra vera. An increased pteridine excretion accompanied successful engraftment in marrow transplantation as well as in rejection of a transplanted donor kidney. The final section deals with detection of phenylketonuria and response to treatment with tetrahydrobiopterin.

This book provides a synopsis of the state of the art in the non-folate pteridine field particularly of those aspects concerned with its possible application to clinical medicine. The data are of interest but do not suggest that it would be useful to set up such assays in our own departments.

I. Chanarin

Structure and Function of Fc Receptors

Receptors and Ligands in Intercellular Communication: Volume 2

Edited by A. Froese and F. Paraskevas

Marcell Dekker; New York and Basel, 1983
294 pages Sw.Fr. 120.00

This book is derived from the topics discussed at an international symposium held in Manitoba in June 1981. It is a multi-author book containing fifteen chapters; the first six are, in general, concerned with the characterization and structure of Fc receptors while the remaining nine concentrate more on the functional aspects of Fc receptors and Fc binding factors.

In the first chapter, Froese and Paraskevas provide a sound introduction giving a general survey of the distribution, structure, formation and function of Fc receptors as well as directing the reader to pertinent chapters on specific topics. Dorrington and Klein provide a useful summary of the isolation and structural characteristics of Fc γ receptors from murine macrophages and discuss the data concerning the heterogeneity of Fc γ receptors and also the location of the site in the Fc which interacts with the receptors. Anderson describes the use of the U937 cell line to characterize the Fc receptors for IgG and IgE on human macrophages. Bourgois et al. summarise data on the rabbit and mouse Fc γ receptors, which leads to their proposal that the receptor is a 115000 M_r single chain molecule, composed of 5 domains of approx. 23000 M_r each. Spiegelberg et al. give a description of Fc receptors on lymphocytes, monocytes and macrophages, while Froese provides a comprehensive summary of the Ig receptors on rat mast cells and basophilic leukemia cells.

In chapter 7, the first dealing with primarily functional aspects, Dickler puts forward views concerning the Fc γ receptor playing a central role in B-cell signalling and regulation. In a chapter concerned with the signals transmitted by Fc γ receptors, Suzuki presents a model in which the